CONNECT

10GbE Virtual Fabric Adapters for IBM System x

10GbE Embedded VFA III
for IBM System x M4 servers
IBM Part Number 90Y6456

10GbE Integrated VFA III
for IBM System x servers
IBM Part Number 95Y3768

10GbE Option VFA III
for IBM System x
IBM Part Number 95Y3762

Emulex Embedded VFA III for IBM System x3550 and x3650 M4 servers: IBM Part No. 90Y6456
Emulex Integrated VFA III for IBM System x3500 M4 servers: IBM Part No. 95Y3768
Emulex 10GbE Virtual Fabric Adapter III for IBM System x M4 servers: IBM Part No. 95Y3762

Simplified Networking, Trusted SAN Interoperability and Increased Business Agility

Optimized Network Connectivity

The Emulex Virtual Fabric Adapter (VFA) III platform for IBM System x is a family of high performance, dual-port 10 Gigabit Ethernet (10GbE) network adapters. The VFA III platform includes the following:

- Embedded VFA III for IBM System x3550 and x3650 M4 servers (90Y6456) — configuration option that attaches to the server motherboard allowing server expansion slots to be used for other requirements

- Integrated VFA III for IBM System x3500 M4 servers (95Y3768) — configuration option that attaches using a server expansion slot

- Option VFA III for IBM System x M4 servers (95Y3762) — add-on adapter that attaches using a server expansion slot

Superior 10Gbps performance

The Emulex 10GbE VFA III for IBM System x achieves line rate 10Gbps performance with support for TCP/IP stateless offloads and TCP Chimney Offload.

Fibre Channel over Ethernet

Emulex VFA III for IBM System x has the option to support Fibre Channel over Ethernet (FCoE) using Emulex OneConnect® Universal Converged Network Adapter (UCNA) technology.[1] With FCoE, Emulex VFA III adapters seamlessly converge Fibre Channel and Ethernet I/O while leveraging ten generations of proven Emulex Fibre Channel products. Using a common infrastructure for Ethernet and storage networks, data centers can reduce capital expenses (CapEx) up to 30% for adapters and switches, and up to 80% for cables. FCoE is fully compatible with existing Fibre Channel infrastructures to protect investments in storage, switches, management applications and administrative expertise.

iSCSI

Emulex VFA III for IBM System x supports an upgrade for connectivity to iSCSI storage networks as a hardware device with full protocol offload.[1] This option enables streamlined deployment and management, and provides performance that is superior to a NIC and software initiator.

Key Features

Flexible Ethernet connectivity

- Supports iSCSI and FCoE Hardware Offload[1]
- Supports up to eight virtual NIC ports

Superior performance

- Line rate 10Gbps performance
- TCIP/IP stateless offloads
- TCP Chimney Offload

Energy-efficient design

- Industry-leading performance per watt with 20% improvement in power efficiency over previous generation

Easy to deploy and manage with OneCommand® Manager application

- Consolidated management of Emulex 10GbE Adapters and Host Bus Adapters (HBAs)
- Integrated management plug-in for VMware vCenter console

Key Benefits

Optimized for virtualization

- Enhanced vNIC function for I/O virtualization flexibility
- Emulex vEngine™ technology enables more VMs per server with multiple protocol offloads
- SR-IOV for optimized I/O performance with supported operating systems

Optimized for convergence

- One network infrastructure reduces CapEx
- One management console reduces OpEx
- Leverages existing IT investments

Enterprise-ready

- Hardware parity, CRC, ECC and other advanced error checking
- Backed by field-proven Emulex reliability and support

[1] FCoE and iSCSI are supported via IBM® Features on Demand (FoD).

10GbE Virtual Fabric Adapters for IBM System x

Optimized for virtualization

Emulex VFA III adapters offer the benefits and flexibility of an enhanced virtual NIC (vNIC) function with bandwidth allocation and I/O convergence. Each port on the 10GbE VFA III cards can support up to four vNIC functions per physical port. For adapters with storage network support, each physical port supports three vNIC functions and one FCoE or iSCSI function.

Broad platform portfolio

Emulex VFA III adapters are available as embedded, integrated and option cards. This allows data centers to standardize on a single platform that can be used across the full line of IBM System x next-generation servers with support for key technologies that include vNICs and network convergence. All of the adapter options use common drivers and are supported with a single management console.

Greener data centers

The Emulex OneConnect UCNA platform delivers industry-leading performance and scalability per watt, reducing requirements for power and cooling. Protocol offload enables efficient use of computing resources, supports more VMs per CPU and reduces the number of servers required to support data center demands.

Advanced error checking

End-to-end data protection with hardware parity, CRC, ECC and other advanced error checking and correcting ensure that data is safe from corruption.

Simplified Management

OneCommand Manager application

The OneCommand Manager application enables centralized management of Emulex OneConnect UCNAs and HBAs throughout the data center from a centralized management console. The OneCommand Manager application supports a graphical user interface (GUI) and a scriptable command line user interface (CLI). The OneCommand Manager plug-in provides comprehensive adapter management that is fully integrated with the VMware vCenter console.

Controller

· BladeEngine™ 3 (BE3)

Standards

· ANSI INCITS T11 FC-BB-5 2.0, FC-PI-2, FC-GS-4, FC-TAPE, and FCP-3
· PCI Express base spec 2.0, PCI Bus Power Management Interface, rev. 1.2
· Advanced Error Reporting (AER)
· IEEE 802.3ae (10GBASE Ethernet)
· IEEE 802.1q (Virtual LAN)
· IEEE 802.3ad (Link Aggregation)
· IEEE 802.3x (Flow Control)
· IEEE 802.1p (QoS/CoS)
· IEEE 802.1Qaz (ETS and Congestion Management)
· IEEE 802.1Qbb (Priority Flow Control)
· IEEE 802.1ab (PFC and LLDP)
· PHP hot plug-hot swap

Architecture

· Dual-channel, 10Gb/s Ethernet Link speed
· PCIe Express 2.0 (x8, 5GT/s), MSI-X support
· Integrated data buffer and code space memory

FCoE Features

· Common driver for UCNAs and HBAs
· 64 N_Port ID Virtualization (NPIV) interfaces (total for adapter)
· Support for FIP and FCoE Ether Types
· Fabric Provided MAC Addressing (FPMA) support
· 1024 concurrent port logins (RPIs) per port
· 1024 active exchanges (XRIs) per port

iSCSI Features[2]

· Target discovery methods
· Authentication mode
· INT 13 Boot

Ethernet Features

· IPv4/IPv6 TCP, UDP checksum offload; Large Send Offload (LSO); Large Receive Offload; Receive Side Scaling (RSS); TCP Segmentation Offload (TSO); IPV4 TCP Chimney Offload
· VLAN insertion and extraction
· Jumbo frames up to 9000 Bytes
· Preboot eXecution Environment (PXE) 2.0 network boot support
· Interrupt coalescing
· Load balancing and failover support including adapter fault tolerance (AFT), switch fault tolerance (SFT), adaptive load balancing (ALB), teaming support, VMware NetQueue v2 and IEEE 802.3ad, VT-d / IOMMU support

Comprehensive OS Support

· Windows Server
· VMware ESX
· Red Hat Enterprise Linux Server
· Novell SUSE® Linux Enterprise Server

Supported Servers

· Embedded VFA III: System x3550 M4, x3650 M4
· Integrated VFA III: System x3500 M4
· Option VFA III: System x3500 M4, x3650 M4

Interconnect

· Copper
  - SFP+ Direct Attached Twin-Ax Copper interface
  - Standards compliant passive copper cables supported up to 5m and active copper cables up to 10m
· Optical
  - Optics: 10GBASE-SR short wave lasers with LC type connector

Physical Dimensions

· Short, low-profile form factor card
· 167.64mm x 68.91mm (6.60" x 2.71")
· Standard bracket (low profile available)

Environmental Requirements

· Operating temperature: 0° to 55°C (32° to 131°F)
· Storage temperature: -40° to 70°C (-40° to 158°F)
· Relative humidity: 5% to 95% non-condensing

Agency Approvals

· UL recognized to UL 60950-1 2nd edition
· CUR recognized to CSA22.2, No. 60950-1-07
· Bauart-certified to EN60950-1 2nd edition
· FCC Rules, Part 15, Class A
· ICES-003, Class A
· EMC Directive 2004/108/EEC (CE Mark)
  - EN55022, Class A
  - EN55024
· Australian EMC Framework (C-Tick Mark)
  - AS/NZS CISPR22, Class A
· VCCI (Japan), Class A
· KCC (Korea), Class A
· BSMI (Taiwan), Class A
· EU RoHS Compliant (Directive 2002/95/EC)
· China RoHS Compliant

Ordering Information

Embedded VFA III: 90Y6456
Integrated VFA III: 95Y3768
Option VFA III: 95Y3762
Visit www.ibm.com/servers/systems/x